The Great Sand Hills Regional Environmental Study

Scoping Document

105-02230/

SCOPING DOCUMENT

for

The Great Sand Hills Regional Environmental Study

Integrated Environmental Monitoring Section
Saskatchewan Environment

A. Background

In June 2004, the Government of Saskatchewan officially responded to the report tabled by the Great Sand Hills (GSH) Land Use Strategy Review Committee. The Committee had been tasked with reviewing the 1991 GSH Land Use Strategy and to make recommendations regarding the future direction of human activities within the area. The review had been triggered by growing tensions between competing interests in the area that include ranching and expanding natural gas development. Among other things, the report made recommendations relating to protected lands, environmental assessment, ecological monitoring, grazing, gas development, and biodiversity conservation.

The government's response to the report indicated that the overall future approach would be one of integrating environmental and economic interests while maintaining a high degree of protection. To achieve this, the existing protected areas were consolidated and increased from 36.5 to 141.25 square miles (~19% of the area). In addition, the government called for a Regional Environmental Study (RES) over the next two years that would consider the cumulative human impacts in the area to date, and make scientific recommendations regarding future land uses in the area. An impartial, internationally recognized ecological expert or experts will lead the study. While the study is underway, existing mineral rights will be honoured, but a moratorium on further mineral sales will be in place. Grazing and other permitted land uses would also continue uninterrupted.

The purpose of this document is to outline the development of the Terms Of Reference (TOR) for the RES. The RES will provide a large-scale assessment of the GSHs to define future land uses and to delineate future areas for protection. The intent is to emulate the size and scope of other previous ecosystem-based assessments such as the 20-year forest management plans.

B. The Review Area

The review area is 750 square miles of native prairie overlaying a more or less continuous surface deposit of unconsolidated sands. Because of this, the area is extremely sensitive to erosion if the vegetation is unduly disturbed. Currently, large, active sand dunes comprise less than one percent of the area. The remainder is vegetated with various plant communities dominated by grasses, shrubs, or trees depending on the local topography (Figure 1). The area contains high levels of native biodiversity, including a number of rare and endangered species, and is considered to have a high degree of ecological integrity, although a recent survey of exotic plants found many present (Gerry and Andersen 2003), hence the need for continued vigilance into the future. Ranching, gas

development, recreation, and eco-tourism are the major human activities in the area. The provincial Crown owns over 85% of the land, of which most is under grazing lease, and additionally protected under *The Wildlife Habitat Protection Act*. All of the area is believed to have high potential for natural gas development, an important source of revenue for the province and the communities surrounding the hills. Among other things, the RES will consider the cumulative impacts to date over the entire area in order to make specific recommendations for the areas where gas development has not yet been approved.

C. Overall Objective and Approach

The overall objective of the RES will be to provide strategic recommendations, in the form of a management plan or plans, to guide human activities in the Great Sand Hills so that the long-term ecological integrity of the area is maintained while economic benefits are realized. The plan should be the product of an objectives-led, integrated and strategic assessment process, based on the evaluation of a range of development scenarios and environmental impacts for the region, so that the development of the area is sustainable.

The overall approach for the RES will be based on Strategic Environmental Assessment (SEA) methodology (see Noble 2000, Noble and Storey 2001). Strategic environmental assessment is a newly-emerging, systematic process for evaluating the environmental consequences of policies, plans, programs or proposals to ensure that they are addressed on par with economic and social considerations early in the decision making process. Strategic Environmental Assessment is an important tool in the progress towards sustainable development because it provides decision-makers with information that allows them to make better-informed decisions. Some of its general principles and characteristics follow:

- Is set in the context of a broader regional vision that establishes particular goals and objectives
- Examines strategies to accomplish these goals and objectives
- Addresses alternative options and asks which one is preferred
- Maximizes positive outcomes by selecting the most positive option at an early stage
- Includes past experience, identifying preferred futures, and then forecasts the effects of alternative options
- Is a proactive rather than a reactive approach
- Leads to a strategy for action

One example of its application in Canada recently occurred at Rustico Island, Prince Edward Island. In 1956, Rustico Island was joined to the existing dune system of Prince Edward Island National Park with the construction of a causeway that became known as the Little Harbour Causeway. In the years following, there have been concerns voiced by local residents, fishers and environmental groups that the Causeway has had a negative impact on water quality, navigability and the local economy. In response, the Government of Canada committed to funding a Strategic Environment Assessment for the area beginning in spring 2004.

D. Considerations

The following is a list of considerations that will guide the development of the study and the recommendations within the management plan.

- Physical Extent - Figure 1 comprises the physical boundaries of the study area.
- Sustainable Development - The management of the area today should not compromise the ability of future generations to derive the same benefits.
- Socio-economic and Cultural - Social and economic values should be considered as part of the assessment process.
- Ecological Scale - The primary basis for ecological assessment should be at the coarse or landscape/ecosystem level, including the approach to species at risk.
- Cumulative Approach - The ecological impacts of human activities to date should be used as the basis for the type and extent of future human activities. Information collection and input from stakeholders is therefore important.
- Human Footprint - The short-term impacts of all human activities should be minimized, especially those that remove vegetation cover. Emphasis should be placed on new or emerging techniques that minimize human impacts. Over the longer-term, human activities must not reduce the area's ecological integrity.
- Protected Areas - Areas considered too sensitive for industrial activity should be highlighted for provincial level protection. This would include areas of cultural significance.
- Restoration - Areas where the vegetation cover has been significantly altered should be restored to their original plant communities. Invasive, non-native plant species should be controlled and/or eradicated.
- Monitoring - A program of ecological monitoring should be established within the study area, both for short- and long-term human impacts, including restored areas. The monitoring program must be based on valued ecological components and include clear identification of objectives, targets and early warning indicators of undesirable change.
- Groundwater Conservation - A plan for the long-term conservation of the groundwater resource under the GSH is required.
- Trans-boundary air pollution - Recommendations for human activities should incorporate the potential effects of airborne pollution from other jurisdictions.
- Climate Change - Recommendations for human activities should try to incorporate the potential effects of predicted climate change in the area.

E. Deliverables

The work will be divided into several stages. Initially, it will focus on creating a core group of expertise among natural and social scientists at the university level. This partnership will oversee the creation of a work plan that will identify tasks, timelines, and responsibilities for the various milestones of the project, including the production of interim reports.

The ultimate deliverable will be an ecosystem-based, integrated, sustainable development plan that, by zone, collectively addresses future development scenarios and includes the following components:

1. An assessment of the current, cumulative baseline condition considering pressures from past and current activities in the region.

2. A projection of the future baseline environment under the current 'status quo scenario,' considering the additive impacts of climate change and increasing airborne pollution from other jurisdictions. While these are beyond the control of any development proposal, they must be considered.

3. The assessment of alternative development scenarios within the context of (deviation from) the current and projected baseline (as a means of determining significance) where each scenario considers various combinations of the cumulative effects of each of the following activities:

- Expanded gas development
- Increased road construction
- Cattle grazing
- Recreation and eco-tourism
- Other potential development

Development scenarios should include consideration of:
- The status quo (projected baseline)
- Maximum development
- Different combinations of the above land use and activities.

4. Identification of a strategic direction and development plan, based on the preferred sustainable option, which includes the establishment of potential impact mitigation measures and a monitoring plan that includes early warning indicators, targets and objectives.

The plan outlined in the final report should include consideration for things such as Values, Objectives, Indicators, and Targets. For the purposes of the study, 'Values' are specific characteristics or qualities of the ecosystem, considered to be important to an interested party. The 'Objectives' are broad statements describing a desired future state or condition for a specific Value of the ecosystem. The 'Indicators' are variables that measure the state or condition of a specific Value of the ecosystem, and for which one or more 'Targets' are set. A 'Target' is a quantitative or qualitative measure that the management of the ecosystem should maintain or move towards. It can be monitored, evaluated, and if necessary, adjusted over time.

At a minimum, each expansion consideration should be assessed at a number of levels of development including; the null, status quo, best practical sustainable option and maximized (full) development. The assessment predictions should include not only the ecological but also the socio-economic and cultural impacts that could occur at those levels of development. The impact considerations should also be presented in a similar way with a range of impact significance/probability highlighted (e.g. Low, Medium, High). The respective definitions/assumptions must be outlined for each scenario and a comparative analysis between scenarios provided that highlights the costs and benefits of each in the full range of 'environmental' impacts.

F. Timelines and Study Organization

Saskatchewan Environment will provide administrative coordination to the study and establish the core partnership group of scientists before Christmas 2004. The group's work plan should be

approved in early 2005 so that field seasons for that year can be planned. Interim reports should be produced by the end of that year. Activities, in 2006 will be to fill gaps identified through review of the interim reports. A draft of the final report should be submitted to SE by March 2006 the final version will be submitted to SE by the July 2006.
The following chart summarizes these dates and key milestones:

Date(s)	Deliverable(s)
December 2004	Establish membership of core expert partnership.
February 2005	Work plan
April-August 2005	First field season
December 2005	Interim reports
April-August 2006	Second field season
March 2006	Interim report
July 2006	Final report

G. References

Gerry, A. and M. Andersen. 2003. The ecological impacts of human-related disturbance in the Great Sand Hills: Exotic plants as indicators of integrity. Government of Saskatchewan Report, Regina.

Great Sand Hills Land Use Strategy Review Committee. 2004. Great Sand Hills Land Use Strategy Report and Recommendations. Government of Saskatchewan Report, Regina.

Noble, B.F. 2000. Strategic environmental assessment: What is it and what makes it strategic? J. Environmental Assessment Policy and Management 2: 203-224.

Noble, B.F. and K. Storey. 2001. Towards a structured approach to strategic environmental assessment. J. Environmental Assessment Policy and Management 3: 483-508.

Saskatchewan Environment and Public Safety. 1991. Great Sand Hills Land Use Strategy. Government of Saskatchewan Report, Regina.

H. GSH Information Website

http://www.se.gov.sk.ca/ecosystem/land%20use/Great%20Sand%20Hills/

Figure 1:
Great Sand Hills
Land Use Strategy Review Area